

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 3. (Canceled)

4. (Currently Amended) A fuel injection valve according to claim 1, which comprises: comprising:

a valve seat and a valve disc arranged detachably from and attachably to said valve seat;

two fuel injection holes arranged in a downstream side of said valve seat; and
swirl force adding means for adding a swirl force to fuel, said swirl force adding means being arranged in an upstream side of said fuel injection holes and in a downstream side of said valve seat corresponding to each of said fuel injection holes so that fuel may be sprayed through said two fuel spray holes toward two directions;

a first plate member having two fuel injection holes, said two fuel injection holes penetrating through said first plate member from an upstream side end surface to a downstream side end surface so as to be directed in directions different from each other, said two fuel injection holes being independently juxtaposed in a surface direction of the upstream side end surface and the downstream side end surface;

a second plate member having said two swirl force adding means, said two swirl force adding means being formed of two through holes penetrating through said

second plate member from an upstream side end surface to a downstream side end surface and independently juxtaposed in a surface direction of the upstream side end surface and the downstream side end surface; and fuel passages provided in said individual through holes, said fuel passage being directed toward a direction offset with respect to a center of said fuel passage to communicate with said fuel passage; and

a third plate member having passage wall surfaces forming fuel passages communicating from an upstream side end surface to a downstream side end surface of said third plate member, wherein

said first plate member and said second plate member and said third plate member are piled up in a downstream side of said valve seat in order of said first plate member, said second plate member and said third plate member from the downstream side so that said fuel passages of said third plate member communicate with said fuel passages of said second plate member, and said two through holes of said second plate member individually communicate with said two fuel injection holes of said first plate member.

5. (Currently Amended) A fuel injection valve according to ~~any one of claims 1 to claim~~ 4, wherein penetrations of fuel sprays injected from said two fuel injection holes are made different from each other by making swirl forces added to the fuel different between said two swirl force adding means.

6. (Canceled)

7. (Currently Amended) A fuel injection valve comprising:

a valve seat and a valve disc arranged detachably from and attachably to said valve seat;

at least first and second fuel injection hole for injecting holes to permit fuel to be injected respectively as two separate sprays in two different directions from said first and second fuel injection holes, said fuel injection ~~hole~~holes being arranged in a downstream side of said valve seat; and

means for making penetration different between fuel sprays injected in individual directions of a fuel spray from the first fuel injection hole different than the penetration of a fuel spray from the second fuel injection hole.

8. (Original) A fuel injection system comprising an intake pipe for supplying air to an internal combustion engine; an intake air flow control device for controlling an air flow flowing inside said intake pipe; and a fuel injection valve for injecting fuel, said fuel injection valve being arranged at a position downstream of said intake air flow control device inside said intake pipe, wherein

said fuel injection valve is a fuel injection valve for injecting fuel in two directions, and said fuel injection valve has a means for making penetration different between fuel sprays injected in individual directions.

9. (Original) A fuel injection system according to claim 8,

wherein said intake air flow control device is arranged so that air flow rates supplied to the individual two fuel sprays injected from said fuel injection valve toward the two directions can be changed.

10. (Original) A fuel injection system according to claim 9,

wherein a rotation shaft of an opening-and-closing valve of said intake air flow control device and a valve stem of said fuel injection valve are arranged in parallel to each other, and

said fuel injection valve injects fuel so that one fuel spray between said two fuel sprays is directed one side of a plane including said rotation shaft and said valve stem as a boundary, and the other fuel spray between said two fuel sprays is directed the other side of said plane as the boundary.

11. (Original) A fuel injection system according to claim 8,

wherein as said means for making the penetration different, number of fuel injection small holes for forming one fuel spray is set to a different number between said two fuel spray so that the penetrations of said two fuel sprays may be different from each other.

12. (New) A fuel injection valve according to claim 7,

wherein said means for making penetration different comprises means adjacent to said first and second fuel injection holes for making an intensity of the fuel spray injected from the first fuel injection holes different than an intensity of the fuel spray injected from the second fuel injection holes.

13. (New) A fuel injection valve according to claim 12,

wherein said means for making the intensity of the fuel sprays different comprises a swirl plate to make the intensity of swirled fuel for the spray from the

first fuel injection holes different than the intensity of swirl fuel for the spray from the second fuel injection holes.

14. (New) A fuel injection system according to claim 8,

wherein said fuel injection valve includes at least first and second fuel injection holes to permit fuel to be injected respectively as two separate sprays in two different directions from said first and second fuel injection holes,

wherein said means for making penetration different makes the penetration of a fuel spray from the first fuel injection hole different than the penetration of a fuel spray from the second fuel injection hole.

15. (New) A fuel injection system according to claim 14,

wherein said means for making penetration different comprises means adjacent to said first and second fuel injection holes for making an intensity of the fuel spray injected from the first fuel injection holes different than an intensity of the fuel spray injected from the second fuel injection holes.

16. (New) A fuel injection system according to claim 15,

wherein said means for making the intensity of the fuel sprays different comprises a swirl plate to make the intensity of swirled fuel for the spray from the first fuel injection holes different than the intensity of swirl fuel for the spray from the second fuel injection holes.

17. (New) A fuel injection system according to claim 14,

wherein said intake airflow control device controls airflow to provide a higher speed airflow adjacent the fuel spray from the first fuel injection hole than an airflow adjacent the fuel spray from the second fuel injection hole to provide a weakening effect on the fuel spray from the first fuel injection hole compared to the effect of the airflow on the fuel spray from the second fuel injection hole.

18. (New) A fuel injection system according to claim 15,

wherein said intake airflow control device controls airflow to provide a higher speed airflow adjacent the fuel spray from the first fuel injection hole than an airflow adjacent the fuel spray from the second fuel injection hole to provide a weakening effect on the fuel spray from the first fuel injection hole compared to the effect of the airflow on the fuel spray from the second fuel injection hole.

19. (New) A fuel injection system according to claim 16,

wherein said intake airflow control device controls airflow to provide a higher speed airflow adjacent the fuel spray from the first fuel injection hole than an airflow adjacent the fuel spray from the second fuel injection hole to provide a weakening effect on the fuel spray from the first fuel injection hole compared to the effect of the airflow on the fuel spray from the second fuel injection hole.